U.S. DEPARTMENT OF ENERGY | Legacy Management

# Amchitka, Alaska, Site Biological Monitoring Results

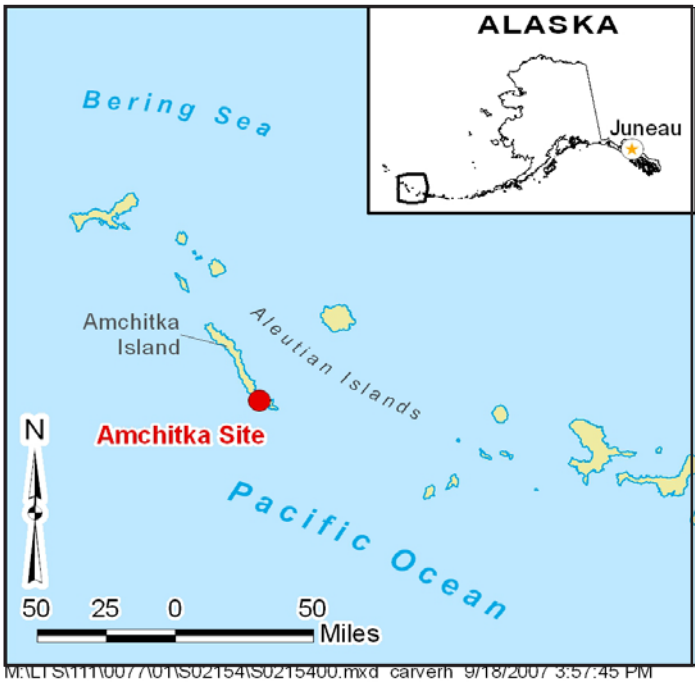
## FACT SHEET

*This fact sheet provides information about sampling results from the biological monitoring conducted on Amchitka and Adak Islands, Alaska, in 2011. The Amchitka site is managed by the U.S. Department of Energy Office of Legacy Management.*

## Site Description and History

Amchitka Island, near the western end of the Aleutian Islands, is approximately 1,340 miles west-southwest of Anchorage, Alaska. Since World War II, Amchitka has been used by multiple U.S. government agencies for various military and research activities. From 1943 to 1950, it was used as a base for the U.S. Armed Forces. During the middle 1960s and early 1970s, the U.S. Department of Defense (DOD) and the U.S. Atomic Energy Commission (AEC) used a portion of the island as a site for underground nuclear tests. During the late 1980s and early 1990s, the U.S. Navy constructed and operated a radar station on the island.

Three underground nuclear tests were conducted on Amchitka Island. DOD and AEC conducted the first nuclear test (named Long Shot) in 1965 to provide data that would improve the United States' capability of detecting underground nuclear explosions. The second nuclear test (Milrow) was a weapons-related test conducted by AEC in 1969 as a means to study the feasibility of detonating a much larger device. Cannikin, the third nuclear test on Amchitka, was a weapons-related test detonated in 1971. With the exception of small concentrations of tritium detected in surface water shortly after the Long Shot test, radioactive fission products from the tests remain in the subsurface at each test location.




*Location of the Amchitka, Alaska, Site*

## Biological Monitoring

The U.S. government has conducted biological monitoring on Amchitka Island since before 1965. The most recent monitoring event occurred in the summer of 2011, when a team led by the U.S. Department of Energy Office of Legacy Management (LM) collected biological and seawater samples from the marine and terrestrial environments of Amchitka adjacent to the three detonation sites and at a background or reference site, Adak Island, 180 miles to the east. The objectives of the 2011 sampling event were to:

- **Collect selected marine flora and fauna, lichen, soil, and marine sediment and analyze the samples for test-related radionuclides to determine if subsistence- and commercial-catch seafood is safe to eat.**

  LM collected samples of marine species near Amchitka and analyzed the samples for selected radioisotopes indicative of the presence of nuclear test-related contamination. A similar sampling event was conducted at Adak Island to assess conditions at a reference location and compare the results. The collected species were chosen to represent the subsistence- and commercial-catch seafood present in the western Aleutian Islands. Food safety risk was measured using the data from the samples collected and conducting calculations with a range of Aleut dietary information.

- **Use data from the collected samples to analyze potential ecological risks.**

  The ecological risks to marine life were evaluated by measuring the radionuclide concentrations of seawater from nine marine species collected near Amchitka and Adak and comparing the

concentrations with screening values to determine the ecological health of the species.

- **Collect, analyze, and establish a baseline for tritium in seawater.**

  Previous studies and contaminant transport modeling predict that tritium will be the leading indicator of test-related material migrating from the detonation points of the underground nuclear tests. Samples were collected to develop a baseline of tritium concentrations for seawater near Amchitka.

- **Collect, analyze, and establish a baseline for cesium-137 in biological samples.**

  Radioactive cesium-137 was measured in the reindeer lichen and soil beneath the lichen on Amchitka and Adak. The data will provide perspective to long-term baseline data considered for Amchitka and Adak. The concentrations of radioactive cesium isotopes in samples collected from Amchitka and Adak indicate that atmospheric transport of airborne contamination from the Fukushima Dai-ichi nuclear accident may have contributed to the levels detected.

## Stakeholder Collaboration

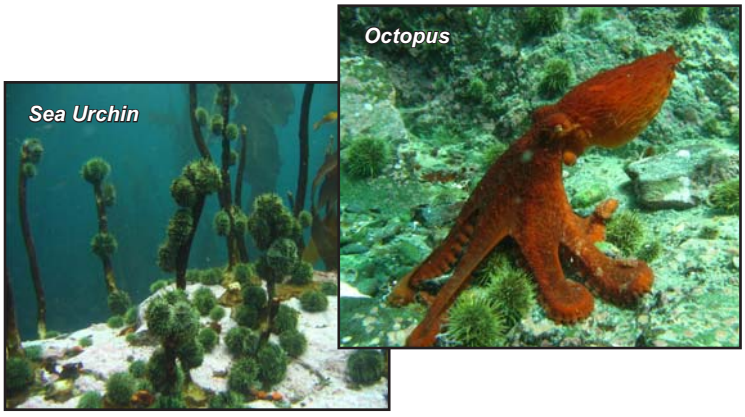
A group of stakeholders representing the federal government, the State of Alaska, and the Aleutian Pribilof Islands Association, collectively called the Amchitka Working Group, worked together before, during, and after the sampling event to ensure that monitoring activities met the needs of all affected stakeholders. Before the event, the group agreed on the overall objectives for the event, identified the different biological species that would be collected for analyses, and selected the locations where samples would be collected. Members of the group traveled to the Aleutian Islands to collect the samples and send them to laboratories to be analyzed. After the sampling event, the group worked together to interpret the results, compare the results to previous data, analyze potential risks, and write and review the report.

## Biological Monitoring Results

The primary focus of LM's long-term stewardship of the Amchitka Island sites is to ensure that conditions at Amchitka remain protective of human health and the environment. To ensure protectiveness, a total of 350 biological samples and 166 seawater samples were collected during the 2011 sampling event and analyzed for nuclear test-related radionuclides. Taking into account a range of Aleut diets, the report estimates the overall potential cancer risk is within the U.S. Environmental Protection Agency's acceptable risk range. Therefore, the seafood harvested at Amchitka and Adak is considered safe for consumption. These results confirmed earlier investigations, which showed that subsistence- and commercial-catch seafood is safe for human consumption.

LM's next monitoring event of the Amchitka site is scheduled for 2016.

*Stakeholders representing several agencies prepare for work on Amchitka Island.*




## Additional Information

For more information about the 2011 Amchitka biological monitoring event and results, the report, *Amchitka Island, Alaska, Biological Monitoring Report 2011 Sampling Results* and other documents related to the Amchitka site are available on the LM website at: http://www.lm.doe.gov/Amchitka/Sites.aspx.

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